

Canadian Rockies by himself and by other kindred spirits.

Though essentially and avowedly a mountain-climber's book, it incidentally places before the reader much information regarding the physical geography of an imperfectly known region that is full of interest. The author's sympathy in the natural beauty of this magnificent country is expressed simply and moderately, and his descriptions therefore, though not particularly vivid, ring true. The aim and effort of his toilsome journeyings was ever to reach the mountain-tops—preferably the tops hitherto untrodden—and all other considerations were subordinate to this desire. How difficult often was the attainment, and yet how great was his success, is faithfully chronicled in these pages. Along the main chain of the Rockies—those huge stratified wedges left by Nature's Quarriers to show how much has been excavated—from Mount Columbia (12,500 feet) in the north to Mount Lefroy (11,290 feet) in the south, and also on the crests of the Ottetail Range outstanding to the west—Mr. Outram and his Swiss guides have scored their innocent conquests and have brought back increased knowledge of forests, glaciers, snow-fields, and craggy peaks.

By conveniently interweaving in his narrative full extracts from the records of other explorers, the author enables us to recognise the salient features of this wilderness of mountains, and in so doing to increase our sense of enjoyment in them. For, as the author has noted, it is curious how, when confronted by some wide and novel prospect, we instinctively search for some feature already known, upon which our new perceptions may form themselves; and great is the relief to our confused senses as soon as a recognisable point is found. In mountain scenery, lack of familiarity usually implies also lack of that knowledge of distances and heights which is an essential ingredient to the full impressiveness of the prospect: for it is not the low-angled picture in the eye, but the interpretation of it, that stirs emotion. The ancients did not know their mountains well enough to appreciate them.

For the same reason it is essential that mountains should have names; but it seems deplorable that almost all the peaks of the Canadian Rockies should have had meaningless personal names attached to them. Better the most tongue-twisting native term or the most bizarre appellation of the backwoodsman! Yet it must be admitted that we agree with the author in desiring something less cumbersome than "The West Branch of the North Fork of the North Saskatchewan" as the name for a stream!

The book is well illustrated by reproductions from photographs of many of the mountains and other striking features in the scenery of the region. But photographs of this kind, and still more the process-illustrations prepared from them, yield only a feeble image, useful perhaps as a reminiscence to anyone who has experienced the scene, but always unsatisfying.

By an evident oversight, no scale is attached to the two maps interleaved in the text, though these are

not on the same scale as the folder at the end of the volume. And is it by accident or design that the seven-line quotation of Sir Edwin Arnold's verse which is given at the beginning of the first chapter of the book is repeated, with a slight variation, at the end of the last chapter?

G. W. L.

#### SCIENCE AND ART OF CARPENTRY.

*A Manual of Carpentry and Joinery.* By J. W. Riley. Pp. viii+500. (London: Macmillan and Co., Ltd., 1905.) Price 6s. net.

THIS is a handy little volume on a well-worn subject, about which there are many works extant, but it contains a good deal of useful information for the student in one of the noblest of the crafts. It was Lord Avebury who compared wood to metal, and dwelt on the higher qualities of the former material as a field for the perpetuation of the more enduring forms of art.

The present manual, besides dealing with the various operations of the carpenter, starts with the consideration of geometry, mensuration, and mechanics as a necessary preliminary for his education if he would work with benefit to himself and his employers. The qualities of various kinds of timber, its structure and growth, method of conversion, defects, and preservation are explained. Chapters on plane and solid geometry and mensuration in relation to carpentry follow, and these are probably the best chapters in the book, because of their importance to the student in their relation to the craft.

The chapter on tools is well illustrated—saws, planes, chisels, gouges and centre bits being shown. The inclusion of wood-working machinery is an innovation which will be welcomed because of the increasing importance of machinery in these days. This chapter is also well illustrated with woodcuts of sufficiently large size to render them useful and explanatory. In fact, although some might say that machines are hardly a part of a student's education, we think the author is right in including them, and it certainly is a novel feature in a text-book for elementary students. Joints and fastenings in floors, roofs and beams, dovetails of various forms used in joinery, and keying and clamping are then described.

The various kinds of wooden floors, the method of "trimming" round fireplaces, and the joints of different kinds between floor boards are also dealt with. We should like to have seen a condemnation of the usual system of constructing floors with a hollow space between floor boards and plaster ceiling, forming a series of continuous dustbins for the collection of filth of all kinds. Many architects frequently omit the plaster ceiling altogether.

The usual types of wooden roofs and trusses and the method of finding bevels for rafters at different inclinations, the different kinds of partitions, scaffolding, jib cranes, shoring of buildings, are all parts of the craft which Mr. Riley has carefully explained with illustrations. The chapter on the mechanics of carpentry and the theory of the parallelogram of

forces, the use of a polar diagram and its application to weighted beams are clearly set out.

Door and panelled framing, revolving vestibule doors, hinges and locks, and the different varieties of windows, sash or casement are explained and illustrated. We cannot understand why writers on the subject are always content to show window frames "in reveal" when they appear to so much better advantage only slightly set back from the face of the wall, as in "Queen Anne" and "Georgian" architecture, and as carried out by so many of the best architects of to-day.

There are also chapters on roof lights and conservatories, staircase work and handrailing, and workshop practice, together with summaries and questions from papers set at the City and Guilds examinations in the subject.

#### OUR BOOK SHELF.

*Die Explosivstoffe mit besonderer Berücksichtigung der neuen Patente die Schiessbaumwolle (Nitrocellulosen).* By Dr. Richard Escales. Pp. viii+308. (Leipzig: Veit and Co.) Price 10 marks.

THIS is the second volume of a series of special works on explosives. Although the first volume on "Gunpowder and Similar Mixtures" was issued as recently as 1904, it has been found necessary to prepare a new edition, and doubtless the first edition of the volume under consideration will soon be exhausted. The whole series when completed should form a valuable reference work on all subjects relating to explosives.

The book is thoroughly up to date, and reference will hardly be in vain for any information either as to details of manufacture or the more purely scientific questions relating to nitrocellulose or closely allied bodies. The testing of gun-cottons to determine their stability and the influence of methods of preparation on this have received a great deal of attention during the last three or four years, since it is generally recognised that the older stability tests are often unsatisfactory when taken alone. The author has collected and arranged in excellent form all possible information on this important matter up to quite a recent date.

Special reference is made to new patents, and this information will be of great service to those engaged in the manufacture of this important class of bodies.

J. S. S. B.

*Lehrbuch der technischen Physik.* By Prof. Hans Lorenz. Zweiter Band, Technische Wärmelehre. Pp. ix+544. (München: R. Oldenbourg, 1904.)

THE first volume of this text-book, dealing with the mechanics of solids, appeared some three years ago. It was to have been followed by a volume on hydro-mechanics, but this has been delayed to include later developments, and its place has been taken by the present volume on heat, which was originally intended to come third in the series. The general scope of the book is similar to that of the first volume. It is not a "technical" handbook as we understand it. There are no descriptions or figures of machines, or even of instruments for measurement. There are no details of experimental methods, nor any mention of precautions necessary for securing accurate results. The whole work is as purely theoretical as any Cambridge mathematical text-book; but the theory is limited to such parts of the subject as have practical applications, with a few numerical tables introduced here and there for the comparison of the equations with experi-

mental results. Such a book might be written by anyone of sufficient mathematical ability without any practical knowledge of the subject, and might be thoroughly assimilated by the student without imparting to him any power of applying the theory to a practical case. One cannot help feeling that, in a subject where so much depends on experiment, and for the technical student who wishes to learn how to apply his knowledge, the utility of the book would be greatly enhanced by a judicious admixture of practice with the theory.

From the purely theoretical standpoint there are many details which are open to criticism. Empirical and theoretical formulæ are in places so interwoven that the student would find it very difficult to disentangle the theory from the consequences of some purely empirical assumption. Though one would certainly hesitate to recommend the book to the technical student wishing to learn how to apply the theory, it might provide him with a useful kind of mental discipline, and prove a good antidote to the more common kind of technical treatise in which experimental results are reduced to a series of purely empirical and often theoretically inconsistent formulæ.

H. L. C.

*The Making of East Yorkshire: a Chapter in Local Geography.* By T. Sheppard. Pp. x+29; 4 plates. (London: Brown and Son, 1906.) Price 1s.

THE teachers of Yorkshire are blessed by nature with an environment of abounding interest; added to this they have, what is equally to their advantage, a goodly supply of able exponents of nature's beauties, amongst whom the author of this brochure takes a worthy place.

Mr. Sheppard gives a clear account of the geological vicissitudes through which east Yorkshire has passed from Liassic to recent times. He has naturally selected the salient points, but a word or two about the conditions which governed the deposition of some of the argillaceous deposits would have resulted in a better balanced story. The imaginative reader who attempts to visualise the statement at the foot of p. 20 will be presented with an awesome and none too truthful picture—but this is quite a small matter.

Every teacher in east Yorkshire should possess a copy of the pamphlet; and it would be an excellent thing if our other counties could each be supplied with a similar sketch of their geological history.

J. A. H.

*Jahrbuch der Chemie.* Edited by Richard Meyer. Pp. xii+589. (Brunswick: Vieweg und Sohn, 1905.) Price 16s.

WE have previously had occasion to commend Meyer's "Jahrbuch" to English readers, and the new volume compares favourably with its predecessors.

That lucidity in some of the abstracts is sacrificed to brevity naturally follows from the vast amount of information which is compressed into a limited space; after all, one valuable feature of a year-book is the completeness of its references. It has been previously observed that the "Jahrbuch" has a distinctly German bias, which, perhaps, cannot be entirely repressed, but scarcely excuses the omission in the present volume of references to certain foreign memoirs of the first importance.

An apology for its late appearance accompanies the volume, and we are led to infer that the delay may have been occasioned in some measure by the regrettable loss of Dr. Bodländer from the staff of contributors, whose place, it may be added, on the section of physical chemistry is now taken by Dr. A. Coehn.

J. B. C.